

Package: tcxr (via r-universe)

October 15, 2026

Title Parse and Analyze TCX Files

Version 0.1.0

Description Framework provides functions to parse 'Training Center XML (TCX)' files and extract key activity metrics such as total distance, total time, calories burned, maximum altitude, and power values (watts). This package is useful for analyzing workout and training data from devices that export 'TCX' format.

Depends R (>= 3.5.0)

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Imports XML

Suggests testthat

Encoding UTF-8

LazyData true

RoxygenNote 7.2.3

NeedsCompilation no

Config/pak/sysreqs libxml2-dev

Repository <https://firefly-cpp.r-universe.dev>

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RemoteUrl <https://github.com/firefly-cpp/tcxr>

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parse_lap	<i>Parse a Lap from a TCX File</i>
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Description

Extracts summary data from a lap and also returns raw trackpoint data.

Usage

```
parse_lap(lap, activity_id = NA_integer_, lap_id = NA_integer_)
```

Arguments

lap	An XML node representing a lap in a TCX file.
activity_id	Integer activity index.
lap_id	Integer lap index within activity.

Value

A list with: - summary: dataframe containing lap summary - raw: dataframe of lap trackpoints

parse_trackpoint	<i>Parse a Trackpoint from a TCX File</i>
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Description

Extracts raw trackpoint fields into one dataframe row.

Usage

```
parse_trackpoint(  
  trackpoint,  
  activity_id = NA_integer_,  
  lap_id = NA_integer_,  
  trackpoint_id = NA_integer_  
)
```

Arguments

trackpoint	An XML node representing a trackpoint.
activity_id	Integer activity index.
lap_id	Integer lap index.
trackpoint_id	Integer trackpoint index.

Value

A one-row dataframe of parsed trackpoint metrics.

TCXRead	<i>Read and Parse a TCX File</i>
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Description

Parses a TCX file and returns both: 1. aggregated activity metrics 2. raw trackpoint data as a dataframe

Usage

```
TCXRead(file_path)
```

Arguments

file_path A character string specifying the path to the TCX file.

Value

A list with: - summary: named list of aggregated metrics - raw_data: dataframe of raw TCX trackpoints

Examples

```
# Example usage
temp_tcx_file <- tempfile(fileext = ".tcx")
cat('<?xml version="1.0" encoding="UTF-8"?>
<TrainingCenterDatabase xmlns="http://www.garmin.com/xmlschemas/TrainingCenterDatabase/v2">
  <Activities>
    <Activity Sport="Running">
      <Lap StartTime="2024-01-01T10:00:00Z">
        <TotalTimeSeconds>1800</TotalTimeSeconds>
        <DistanceMeters>5000</DistanceMeters>
        <Calories>400</Calories>
        <Track>
          <Trackpoint>
            <Time>2024-01-01T10:00:00Z</Time>
            <DistanceMeters>0</DistanceMeters>
            <AltitudeMeters>50</AltitudeMeters>
            <Extensions>
              <TPX>
                <Speed>2.78</Speed>
                <Watts>200</Watts>
              </TPX>
            </Extensions>
            <Cadence>90</Cadence>
            <HeartRateBpm>
              <Value>150</Value>
            </HeartRateBpm>
          </Trackpoint>
        </Track>
      </Lap>
    </Activity>
  </Activities>
</TrainingCenterDatabase>
```

```
        </Lap>
      </Activity>
    </Activities>
  </TrainingCenterDatabase>', file = temp_tcx_file)

tcx_data <- TCXRead(temp_tcx_file)
tcx_data$summary
head(tcx_data$raw_data)

unlink(temp_tcx_file)
```

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